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SPECIAL ESTIMATE

INTELLIGENCE IMPLICATIONS OF A CENSUS
AND VERIFICATION OF ARMED FORCES
AND ARMAMENTS



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S P E C I A L E S T I M A T E

**INTELLIGENCE IMPLICATIONS OF A CENSUS AND VERIFICATION
OF ARMED FORCES AND ARMAMENTS**

Number 4

Published 12 May 1951

The intelligence organizations of the Departments of State, the Army, the Navy, the Air Force, and the Joint Staff participated in the preparation of this estimate. All members of the Intelligence Advisory Committee concurred in this estimate on 10 May.

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C E N T R A L I N T E L L I G E N C E A G E N C Y

SE-4: INTELLIGENCE IMPLICATIONS OF A CENSUS AND
VERIFICATION OF ARMED FORCES AND ARMAMENTS

THE PROBLEM

To analyze, from the intelligence point of view, the implications of a census and verification of armed forces and armaments (including atomic).

ASSUMPTION

That a continuing census and verification of all armed forces* and armaments, including atomic weapons, of the US and the USSR is to be undertaken on a phased basis as the first step of an agreed international system for control, regulation, and limitation of armed forces and armaments, including atomic energy activities.

* Including para-military, internal security, and police forces.

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CONCLUSIONS

1. We are convinced that the USSR would enter into any agreement of census and verification in bad faith and would carry it out in bad faith.
2. Since the USSR has far more information on the US than vice-versa, it is probable that a census and verification could be so devised that in the initial phases the US would secure more valuable information than would the Soviet Union. This would require that the USSR be prevented from securing in those initial phases information intended to be withheld until a later phase, or not to be disclosed at all.
3. Beyond the initial stages, phasing of such a census and verification will become increasingly difficult and there will be a correspondingly greater danger that the USSR would secure information of relatively greater value than would the US.
4. Adoption of the following principles in the phasing of census and verification would aid in protecting US interests:
 - a. In the earlier phases, only the least sensitive information should be released.
 - b. Sensitive aspects of research and development in all fields, manufacturing processes and details of new weapons (the measure of US technological superiority) should be excluded altogether.
 - c. The freedom of movement and access of inspection teams should in general be carefully limited to quantitative verification of numbers, types, sizes, etc., although within these limits inspection should be as full and free as possible. Detailed inspection of

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technical specifications, performance data, etc., should be avoided. Although this limitation on the freedom of inspection would reduce the amount of intelligence the US would acquire, it would be necessary in order to guard against exposure of the highly sensitive information excluded from the census and against premature disclosure in an earlier phase of information reserved for a later phase.

d. Each phase, and within it each step in the inspection process, should be carried out simultaneously in the US and USSR.

5. It is certain that the USSR would attempt to exploit any system of census and verification to its advantage and there is grave danger that the USSR might succeed in so exploiting it. Although a system based on the principles enumerated in 4 above would in the initial phases theoretically secure for the US more information on the USSR than vice-versa, and aid in protecting the technological superiority of the US, we believe that these results would be extremely difficult to achieve in practice. It would be particularly difficult to implement the system in detail in such a way as to prevent the USSR from securing in an earlier phase information which was to be withheld until a later phase, or not disclosed at all. An analysis of these difficulties, as well as the possibilities of surmounting them, will require careful and extensive study by operating as well as intelligence agencies of this government.

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DISCUSSION

PART I. RELATIVE ADVANTAGES AND DISADVANTAGES TO THE US

Relative Superiority of Soviet Intelligence on the US

1. We believe that in almost every field the USSR has far better intelligence on the US than the US does on the USSR. The intelligence available to the Soviet Union from overt US sources alone is of incalculable value. The postwar atomic espionage trials in the US, UK, and Canada, among other things, are ample evidence of the extent of Soviet covert penetration. While the effectiveness of Soviet intelligence penetration may well be declining as a result of growing Western security consciousness, it is only prudent to assume that the USSR will continue to secure relatively superior intelligence on the Western Powers in many fields. Under these circumstances, the USSR might consider that the value of the additional intelligence it could gain through census and verification would be relatively less than that which might accrue to the US.
2. On the other hand, as a result of its superior intelligence on the US, the USSR would be far better able to "pinpoint" critical activities which it wished to inspect without being diverted to less important targets or following false leads. Moreover, because much of its intelligence is gained overtly or semi-overtly, the Soviet Union would find it less necessary to risk compromising sensitive sources. Owing to the paucity of overt data on the USSR, the US would be far more hampered by fear of compromising such sources.
3. The relative advantages and disadvantages of a system of census and verification must also be assessed against the background of present and potential US intelligence on the Soviet sphere. Largely because of the exceedingly effective and all-inclusive Soviet security system, US intelligence on many aspects of the

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Soviet bloc is gravely inadequate and based on fragmentary and scattered evidence. US estimates of Soviet plutonium and atomic weapons production, for example, are probably accurate only to within 50 percent. Because of the Iron Curtain on the one hand and the large reservoir of Communist informants and easier Soviet access to the US on the other, the US is far less able to collect overt and also covert intelligence than the USSR.

4. However, the relative superiority of Soviet intelligence on the US might be turned to US advantage through a census and verification. It might be possible to release a good deal to the USSR without materially adding to its knowledge. For example, Soviet knowledge of US and NATO order of battle is probably relatively complete, as is the USSR's knowledge of plant locations, production facilities, military installations, etc. Soviet intelligence on the size of our forces and equipment stockpiles is probably also substantial. Therefore, any system which merely allowed the USSR to confirm these details, while assuring the US opportunity of securing comparable intelligence, might be relatively advantageous to the US. If such categories could be included in the initial phases of any census and verification, they might serve as a means of securing valuable intelligence at minimum cost and testing the efficacy of the system.

Relative Advantages of Disclosure in Various Categories

5. In the following fields even partial Soviet disclosure through census and verification might be relatively advantageous to the US from an intelligence point of view:

a. Size, composition, and equipment of existing forces; size of conventional arms stocks; and location of these forces and stocks. Soviet intelligence in this category probably is relatively complete, while US intelligence is largely based on fragmentary and scattered evidence.

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b. Size, location, capacity, and production rates of conventional military installations and munitions production facilities. In this field, too, existing and potential Soviet knowledge is relatively full and far superior to that of the US, at least in the conventional arms sphere.

c. Economic information. In view of Soviet secrecy with regard to all types of economic information, as compared to practically full US disclosure, inclusion of as much as possible of this data in any census would be of distinct relative advantage to the US. Knowledge of armed forces and armaments, and even of munitions plants, is incomplete without knowledge of overall production capacity, industries supporting military end-item production, transportation, labor force, raw materials, etc.

d. Certain aspects of military research and development (except atomic). Even in the research and development category, there are certain aspects which it might be relatively advantageous for the US to disclose if there were reasonable prospect for comparable Soviet disclosure. From an intelligence point of view, the USSR's probable greatest need is: (1) for detailed drawings and specifications to enable it to bridge the gap between a prototype and quantity production; and (2) for insurance against the surprise appearance of decisive new weapons. With respect to (1), relatively little gain might accrue to the USSR from mere physical survey of research and development facilities and prototypes without detailed inspection. With respect to (2), however, such a survey of prototypes not already known to the USSR might to some extent remove the surprise element from a new weapon which had reached the prototype stage.

Because of the probable continuation of its current technological lead for the next few years, the US need is not so much for detailed technical data to permit exploitation of Soviet developments as for indications of those areas in which the USSR is giving priority

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to development and procurement of new weapons. This requirement could largely be satisfied by such a survey of research and development facilities and prototypes, with comparable access to production facilities. In this phase the US might stand to gain relatively more, even considering probable Soviet bad faith.

e. Certain aspects of atomic energy. A similar situation prevails in this field. As long as inspection included only uranium and thorium mining, fissionable material production facilities, and even the current stockpile (excluding new prototype models), the US should gain considerably or at least break even from reciprocal inspection.

6. On the other hand, in the three categories below there would be major risks in US disclosure which might well outweigh the advantages to the US. These categories are doubtless among the highest priority Soviet intelligence targets, as it is in these fields that the existing or potential US lead over the Soviet Union largely counterbalances superior Soviet conventional strength in being.

a. Production processes and manufacturing "know-how." In this field the relative advantage to the USSR would rise sharply as inspection became more detailed. So long as plant inspections were brief and general, the US might gain more in general intelligence, though it would have little to gain in knowledge of production techniques. On the other hand, the USSR would gain substantially from detailed and frequent inspections of US production processes, designs, machinery, etc.

b. Details of military research and development (except atomic). Since the USSR's probable greatest need in this field is for detailed drawings and specifications of research and development projects, while the US has no comparable need, disclosure in this category would entail major risks for the US.

c. Atomic energy. If inspection should become detailed and include atomic research and development, the USSR would gain heavily unless it has made wholly unexpected progress or its espionage has been much more successful than believed.

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7. In any census and verification, each side would be bound to gain a certain amount of "collateral" information (data on general conditions in the country, economic conditions, quality of weapons, standards of training, level of maintenance of equipment, etc.) in fields not directly covered by any census phase. While the USSR, as a police state, could more effectively control the collateral intelligence obtained in the course of inspection and verification, we believe on balance that the US might gain more in this field. Even assuming Soviet bad faith, the paucity of US intelligence on most aspects of the USSR gives a correspondingly high value to almost any collateral information that might be gleaned, while much of the collateral information available to the USSR could be easily secured in any case.

8. Inevitably, any phased inspection system will leave, as an aftermath, increased internal security problems for the US. The Soviet inspection teams will note the places and facilities they are not allowed to visit, and some of these facilities will then become targets for intensive covert intelligence exploitation. Since Soviet intelligence facilities in the US are extensive, the internal security problems will become more serious through such targeting.

PART II. CENSUS AND VERIFICATION PROCEDURES

9. Any satisfactory census and verification procedure should meet four criteria. It should provide for: (a) comprehensive and detailed specifications for disclosure within agreed phases, thus reducing the possible scope of Soviet bad faith; (b) clear documentation of Soviet bad faith at any stage, thus providing the best possible case for termination; (c) prompt termination at any stage in event of such bad faith; and (d) protection of the US, insofar as possible, from disclosure of highly sensitive information, including premature disclosure in earlier phases of information reserved for later phases.

Scope of Census and Verification

10. The physical and geographical scope of census and verification would obviously have a great bearing on the overall advantages to East versus West. The USSR has called for Big Four disarmament,

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and presumably any census would include at least Britain and France, if not the other US allies. The state of existing "open" disclosure in other key Western countries appears almost as great as that in the US, and Soviet intelligence penetration, largely through local sympathizers, is in many cases probably substantially greater. Since so much of the research and development, new and unconventional weapons, arms production, and technical know-how of the Western Powers (which are probably the key Soviet intelligence targets) is concentrated in the US, census and verification in other US allies (except the UK) might have even fewer disadvantages arising from premature or unintended disclosure than in the US. The potential disadvantages for the UK might be roughly comparable to those for the US, however, because of extensive UK research and development, arms production, and technical "know-how". As new and secret US or UK weapons are transferred to other allies and as US "know-how" and production processes are used to stimulate production overseas, the potential disadvantages arising from premature or unintended disclosure by these allies would tend to grow.

11. Although presumably the USSR would strongly favor limiting any census and verification to the Big Four powers, we consider it important, from the intelligence point of view, that any system cover the European Satellites and Communist China as well. Inclusion of East Germany and Czechoslovakia would be particularly important from the scientific standpoint, because they contribute substantially to Soviet research and development. If the Satellites and China were omitted, the USSR could conceivably conceal forces, stockpiles, and research and development activities by transferring them there. Moreover, the Iron Curtain around other Soviet bloc countries, while by no means as impenetrable, is roughly comparable to that around the USSR.

12. Because of the serious risks to the US of disclosure of sensitive information in such fields as research and development, manufacturing processes, technical "know-how", and details of new weapons (the measures of US technological superiority), the US should exclude such sensitive information from any census. Protection of such

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sensitive information would be facilitated if census and verification could be construed as meaning only a numerical count and verification in the case of armed forces and armaments; this would avoid detailed inspection which would reveal qualitative data. Similarly, census and verification of manufacturing facilities, research and development installations, and technical manpower might be limited to quantitative inspection of facilities and records to establish size, production rates, etc. Certain aspects of research and development, including atomic, might be included in this manner without revealing sensitive data. The great difficulty would be in devising inspection procedures which would permit quantitative verification without revealing qualitative details.

Phasing of Census and Verification

13. Because of probable Soviet bad faith, a careful phasing of any census and verification would be indispensable to minimize the risks to the US of disclosures without adequate compensatory disclosure from the USSR. Any phasing should be so designed as to allow breaking off with minimum risk at any phase in event of demonstrable Soviet bad faith. In view of the propaganda disadvantage to the party which withdraws, the census and verification system should be so constructed as to permit the strongest possible proof of Soviet bad faith.

14. The USSR clearly has much greater opportunities than the US to conceal data effectively: (a) the US cannot "pinpoint" targets as effectively as the USSR because of the relative paucity of US intelligence on the USSR; (b) the USSR is much more skilled at large-scale concealment and evasion; (c) the Soviet Union has great physical capabilities for concealment owing to the vastness and inaccessibility of much of the USSR; and (d) the police state techniques of the USSR and their absence in the US would hamper US inspection and facilitate that of the USSR. Moreover, the USSR would probably take advantage of these opportunities for concealment while the US presumably must act in good faith. Therefore, any phasing must be designed to minimize these Soviet advantages by first stressing those categories where the US has the least to lose.

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15. From the intelligence point of view, any phasing system should take account of the relative superiority of Soviet intelligence on the US. The implicit concept upon which such a system should be based should be that of seeking initially to put the US on a "comparable" intelligence footing with the USSR. In other words, the initial phases of the system should be designed to make available to the USSR data which it is already known or believed the USSR has. By this means it might be possible to guard against Soviet bad faith, and to reveal relatively less of significance to the Soviet Union than it would be compelled to reveal to the US. However, since the USSR will obviously seek the same advantages in its proposals, the US proposals would have to appear reasonable to assure the maximum propaganda advantage if the negotiations failed.

16. We believe that any phasing should start with the general and non-detailed quantitative aspects of conventional armed forces, armaments, and over-all economic potential, with inspection designed to verify numbers, types, and locations. Only after these phases were completed to the satisfaction of the US should the US even consider implementing further phases with access to detailed qualitative data. Phased disclosure in the field of atomic and other unconventional weapons and in research and development might begin concurrently but there should be excluded from any census and verification the following items in these fields:

- a. In the atomic field: details of plants producing fissile materials and all research and development work.
- b. In the non-atomic field: detailed drawings and specifications of research and development projects.

Types of Census and Verification Procedures

17. Aside from phasing, the types of census and verification procedures employed in each phase would be of vital importance in minimizing the risks to the US and compelling maximum disclosure by the USSR. It is apparent that these two objectives are

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largely contradictory. The more frequent, thorough, and unrestricted the inspection the less would be the possibility of Soviet concealment, but the greater would be the risks of sensitive disclosures by the US. This contradiction is further apparent when we examine two basic problems implicit in any verification system. While it is probably feasible to verify such quantitative data as had previously been disclosed in a census, it would be difficult, if not impossible, to determine whether all relevant data had actually been disclosed. It would be impossible to determine whether there had been full disclosure unless the inspectors were allowed to travel anywhere to look for anything included in the particular phase. On the other hand, only by careful restrictions on the movement of inspectors could the USSR be prevented from acquiring in the earlier phases information reserved for later phases, or not to be disclosed in any phase.

18. Although full Soviet disclosure could only be assured by completely free and unrestricted inspection in each phase, such a procedure would entail serious risks for the US of prematurely revealing at earlier phases information which the US planned to disclose only in later phases or not at all. Consequently it is doubtful whether in any phase the US should allow Soviet inspectors freedom to travel anywhere and inspect everything. The problem, therefore, is to devise an inspection system which, while less than complete, would still increase the relative gains to the US while minimizing the risks of premature US disclosure.

19. If inspection were restricted, the US would face a serious problem in determining whether the USSR had made full disclosure. It would be exceedingly difficult to determine whether Soviet data already revealed in the census was either exaggerated or understated. The US would have nothing more than its pre-agreement intelligence to use as a test of possible Soviet exaggeration or understatement. In some instances this intelligence is shadowy and incomplete; in others it is based on highly sensitive sources and is reasonably accurate. Thus, in the first

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case, pre-agreement intelligence might be considered insufficiently authoritative to warrant challenging Soviet good faith; and in the second case, where the challenge was justifiable, the US might be unable to do so without compromising its sources.

20. The initial agreement on census and verification should be as comprehensive and clear as possible, spelling out in great detail each phase and step of the procedure. Moreover, the census itself should call for as complete and detailed answers as possible, requiring exact disclosure of numbers, designations, sizes, locations, etc., so that subsequent verification will be facilitated.

21. There should be provision for immediate termination of the census in event of an act of bad faith, and the agreement and procedures should be framed so as to facilitate the determination and proof of bad faith. At best an accusation of bad faith would be difficult to sustain. In some cases the US could prove its charge of bad faith only by revealing sensitive intelligence.

22. The first over-all step in any census might be a comprehensive aerial survey of all cities, towns, and installations served by air, rail, or highway links. The intelligence value of this alone to the US would be extensive, while the gains to the USSR would be minor by comparison. These air photos might then be used as a means of identifying plants and installations to be included in various phases of the census and verification.

23. There should be simultaneous census and verification in each phase. For example, the USSR would not be permitted to inspect the first US facility until the US team had arrived at the first Soviet facility and was ready to inspect. Each nation should be allowed to set its own priorities for inspection of facilities which have already been revealed in the census, so that the US could inspect highest priority targets first. The Soviet team would not be permitted to travel to the second US facility until the US team had

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satisfactorily completed inspection of the first Soviet facility. Each new phase should begin only after both countries had agreed that the previous phase had been satisfactorily concluded.

24. Some means, short of unrestricted freedom to travel anywhere and inspect anything, would have to be devised to forestall probable evasion of full disclosure in the census on the part of the Soviet Union. Some means of formal challenge of census figures at any stage of the verification process should also be provided.

25. Inspection should be limited to quantitative rather than qualitative verification, and the freedom of action of inspection teams should be limited accordingly. Inspectors should be allowed to check visually the numbers, size, and type of forces and armaments, and pertinent quantitative records, but not to make detailed inspections of weapons, equipment, or facilities to discover details of their design, construction, composition, etc. Special precautions might be required in some cases to detect dummies.

26. On the other hand, the fewer the restrictions on the number and frequency of inspections, the size and composition of inspection teams, the timing and duration of inspections, etc., the more the US has to gain. Whenever possible, inspections should be conducted by qualified US technical personnel. Other nationals might be less thorough or well-briefed, and perhaps subject to Soviet intimidation.

27. Verification would yield greater intelligence value if it included inspection of records at the ministry and chief administrative levels, partly to provide a cross-check on plant-by-plant inspections.

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